CLAIM AMENDMENTS

1. (ORIGINAL): A method for thermally processing a semiconductor wafer, the method comprising the steps of:
   a. providing a process chamber;
   b. generating a substantially isothermal hot wall process zone in the process chamber using substantially isothermal sections of electrical resistance strip heaters;
   c. loading the wafer in the process zone;
   d. rotating the wafer;
   e. flowing a preheated gas over the wafer in a direction substantially parallel to the wafer surface;
   f. inducing a velocity gradient in the preheated gas so that the velocity of the gas increases in the direction of the gas flow; and
   g. maintaining the gas in zones held at preselected temperatures until the gas exits the process chamber.

2. (ORIGINAL): The method of claim 1 further comprising the step of restricting heat loss from the heaters and process chamber.

3. (ORIGINAL): The method of claim 1 further comprising the step of capturing substantially all process gas leakage from the process chamber.

4. (ORIGINAL): The method of claim 1 wherein step b comprises measuring temperatures at multiple locations.

5. (ORIGINAL): The method of claim 1 further comprising, after step d, the step of measuring the temperature at multiple locations on the wafer while the wafer is rotating.

6. (ORIGINAL): The method of claim 1 wherein the gas recited in step e is selected so as to cause a semiconductor wafer processing step selected from the group consisting of annealing, activating dopant, depositing by chemical vapor deposition, depositing by epitaxial deposition, doping, forming a silicide, nitriding, oxidizing, reflowing a deposit, and recrystallizing.

7. (ORIGINAL): The method of claim 6 further comprising the step of enclosing the process chamber in a housing.

8. (ORIGINAL): A method for thermally processing a semiconductor wafer, the method comprising the steps of:

a) providing a process chamber;
b) enclosing the process chamber in a substantially cold-wall housing;
c) generating a substantially isothermal hot wall process zone in the process chamber using substantially isothermal sections of electrical resistance strip heaters and measuring temperatures at multiple locations on at least one of heaters and wall of the process chamber to control the temperature of the process zone;
d) restricting heat loss from the heaters and process chamber;
e) loading the wafer into the process zone;
f) rotating the wafer;
g) monitoring the temperature of the wafer by measuring the temperature at multiple locations on the wafer while the wafer is rotating;

h) flowing a preheated gas over the wafer in a direction substantially parallel to the wafer surface;

i) inducing a velocity gradient in the preheated gas so that the velocity of the gas increases in the direction of the gas flow;

j) capturing substantially all process gas leakage from the process chamber; and

k) maintaining the gas in zones held at preselected temperatures until the gas exits the process chamber.

9. (ORIGINAL): In combination, the steps of:

a) containing a wafer in a substantially isothermal process zone;

b) rotating the wafer within the process zone;

c) monitoring the temperature of the wafer while the wafer is rotating;

d) flowing a preheated gas over the wafer in the process zone in a direction substantially parallel to the wafer surface;

e) inducing a velocity gradient in the preheated gas so that the velocity of the gas increases in the direction of the gas flow as the gas passes over the wafer.

10. (ORIGINAL): The combination of claim 9 wherein the isothermal process zone is heated using substantially isothermal sections of electrical resistance strip heaters.

11. (CURRENTLY AMENDED): The combination <u>of</u> claim 10 wherein monitoring the temperature of the wafer comprises measuring the temperature of the wafer at multiple locations on the wafer.

12. (ORIGINAL): The combination of claim 11 wherein the gas comprises a silicon containing compound.

13. (ORIGINAL): The combination of claim 10 wherein the rotation rate and the velocity gradient produce improved uniformity of heat and mass transfer to the top surface of the wafer.

14. (ORIGINAL): The combination of claim 12 further comprising the step of pre-heating the gas in a pre-heat zone so as to reduce the amount of cooling of the wafer by the gas.

15. (ORIGINAL): The combination of claim 14 further comprising the step of maintaining the temperature of the gas high enough so as to substantially prevent deposition of non-adherent wall deposit proximate to the process zone.

16. (ORIGINAL): The combination of claim 15 further comprising the step of providing a postprocess zone for controlled cooling of the gas after the gas leaves the process zone so as to substantially prevent thermal shock induced deposition.

17. (ORIGINAL): The combination of claim 14 further comprising the step of cooling the gas leaving the process zone slowly enough so as to substantially prevent thermal shock induced deposition.

18. (ORIGINAL): The combination of claim 9 further comprising the step of distributing the preheated gas flow over the surface of the wafer.

19. (ORIGINAL): The combination claim 9 further comprising the step of inducing substantially laminar flow of the preheated gas before the gas reaches the edge of the wafer.

20. (ORIGINAL): A method for thermally processing a wafer, the method comprising:

a) step for maintaining the wafer at a substantially isothermal temperature;

b) step for rotating the wafer for improved heat and mass transfer uniformity;

c) step for inducing a gas flow having a velocity gradient above the surface of the wafer for improved heat and mass transfer uniformity for the surface of the wafer;

d) step for controlling the temperature of the gas so as to reduce the amount of cooling of the wafer by the gas;

e) step for controlling the temperature of the gas so as to substantially prevent deposition of non-adherent layers that cause particle contamination of the wafer.